VDH COVID-19 *Pandemic Metrics Dashboard*

Talking Points - Last Updated 9/11/20

Purpose and Interpretation

The *Pandemic Metrics Dashboard* describes the current burden and trend of COVID-19 at the region level in Virginia.

- Depicting both burden and trend provides a more comprehensive picture.
- It complements the *Virginia's Key COVID-19 Measures*.

Eight indicators are represented: new cases, PCR test percent positivity, outbreaks, percent of cases among healthcare workers, COVID-like illness (CLI) emergency department (ED) visits, current intensive care unit (ICU) hospitalizations, percent of hospital beds occupied, and hospitals reporting personal protective equipment (PPE) shortage.

It includes an algorithm that distills a lot of complex data into more interpretable and actionable information.

- The algorithm calculates a composite score for burden and for trend.
- Seven of the eight indicators are used in the algorithm to determine the composite scores.
    - The percent of cases among healthcare workers is currently not included because it may be significantly under-reported.
- Because COVID-19 has a relatively long incubation period and laboratory turn-around times may be long, the calculated burden has an associated lag time.
    - Cases by report date likely represent onset dates two weeks prior and exposure a week before that.
    - Lab report date likely references onset dates one week prior.

The trend is not intended to be a true forecast, hindcast, or nowcast but can guide decision-making on what steps to take to reduce transmission of the virus.

- For example, a region currently experiencing moderate burden with an increasing trend may soon see high burden and should make community-level decisions accordingly.

These data should be interpreted in combination with qualitative data and other information from local, regional, and state public health authorities.

- District health directors and epidemiologists can provide more context about what is occurring in their districts.
- The dashboard also includes a subset of the metrics at the locality level to inform discussions about the regional data.
- Public health authorities should be included in the review of the *Pandemic Metrics Dashboard* and associated decision-making.

Methods

1. The methodology is adapted from the CDC's *State Indicator Reports*.
2. For each metric (e.g., number of reported cases), the current burden (e.g., incidence per 100,000 population) and the recent trend (e.g., number of cases is increasing or decreasing) are calculated. These statistics are then compared to thresholds set by VDH, using public health standards.
3. To calculate the composite scores for burden and trend, each metric is multiplied by an assigned weight based on how much trust VDH has in the data source, how relevant it is to overall COVID-19 activity, and how important it is to healthcare system preparedness. The weighted metrics are added together to create a composite score.
4. The average of the daily composite scores for the previous week (Sunday-Saturday) represents the overall burden and trend. These values are compared to thresholds to assign one of four possible levels for burden and one of three for trend.
    - One of the levels of burden is called "Minimal" and indicates that there is little to no COVID-19 circulating. If the burden is Minimal, a trend statistic is not calculated.
5. The ten possible combinations of overall trend and overall burden are used to assign a region-level extent of community transmission.
6. There are four levels of community transmission: minimal, low, moderate and substantial.
    - There are two in-between categories: approaching moderate and approaching substantial.
7. The locality level metrics do not include data associated with hospitals.
    - Not every locality has a hospital or emergency department.
    - Residential proximity is not the only determining factor in what hospital a patient may visit. Insurance coverage, cost, healthcare system, and current proximity may all play a part in which hospital a patient visits.
    - VDH has access to hospitalization data through a partnership with the Virginia Hospital and Healthcare Association (VHHA). VHHA only provides hospitalization data at the state and region levels.
8. Tables are included as an appendix to this document.

How to Use the Dashboard

There are four tabs: Pandemic Status, Composite Scores, Region Metrics, and Locality Metrics

<u>On the Pandemic Status tab, there are four elements to consider</u>:

The map at the top of the page is color-coded with the overall burden and has icons for the overall trend.

- These data are presented by week.
- The most recent week is the default view, but you can select a different week by using the dropdown at the top of the page.

Below the map is a table with the overall burden and overall trend by region with the addition of the overall transmission extent.

- These data are adjusted with the same dropdown at the top of the page.

Below the table there is a time series graph of the transmission extent by week since VDH began collecting COVID-related data in late January.

- These data are available for each region. Select a region to view in the dropdown immediately above this graph.

A brief description of the methods is available at the bottom of this tab. For more details on the methodology, see the *Pandemic Metrics Technical Notes*.

<u>On the Composite Scores tab, there are four elements to consider:</u>

The current pandemic status for the most recent week is available in writing at the top of the page.

- All of the contents on this page are provided by region and week, chosen in the dropdowns at the top of the page.
- If you selected a region or week in the dropdowns on another tab, then that selection will be carried throughout.

The overall burden gauge and overall trend text provide the numerical value of these metrics and how they compare to the established thresholds.

- These numerical values are the average of the composite scores from the previous week.

Below the gauge is a trend series graph of the composite score by day.

- The previous Sunday-Saturday week is highlighted.

At the bottom of this page is a table of indicators and weights for each individual metric.

- The sum of the weighted indicators is the composite score for that day.
- These data are presented by day.
- The most recent day is the default view, but you can select a different day by using the dropdown immediately above this table.

<u>On the Region Metrics tab, there is one element that contains eight individual metrics:</u>

The individual metrics and data are available by region and for the state of Virginia as a whole.

- The data presented are driven by the dropdowns at the top.
- The 'Region' menu on the left will affect all fields within the dashboard.
- The 'Date' menu in the center will affect the burden circle on the left and the trend icon on the right below.

- The ‘Statistic’ menu on the right will affect the graphs in the center each metric. Options include the burden (the 7-day moving average), trend (the number of days in consecutive increase or decrease), raw data, spline, and slope.
- The raw data, spline, and slope are provided to increase transparency in how the burden and trend are calculated.

- Each data source is treated as a row with the name to the left.
- For each of the indicators, there is a data question to help explain what VDH is measuring.
- From left to right, the circle is the burden. It displays the most recent 7-day moving average and is provided as a rate per 100,000, a percentage, or a count.
- The graph in the middle presents the data as a time series. When either burden or trend is selected in the dropdown, the dotted lines and shading correspond to the thresholds established for each data source.
- The symbol on the right is the trend. Text is added to explain the trend, including the consecutive number of days’ increase or decrease in that metric.

<u>On the Locality Metrics tab, there are five elements to consider</u>:

The map of Virginia displays the burden for each individual data source.

- Select the data source and the date you would like to see in the dropdowns at the top of the page.

Below the map are the individual metrics and data.

- Under the ‘County Map’ heading, a drop down allows you to select an individual locality.
- These individual metrics are presented in the same manner as on the Region Metrics tab.
- Only those data sources available are the locality level are included.
- Similarly, they are driven by the three dropdown menus.
- The ‘Locality’ menu on the filters all fields to that locality.
- The ‘Date’ menu at the top of the page drives the burden and trend statistics.
- The ‘Statistic’ menu on the right will affect the graphs in the center each metric.
    - Options include the burden (the 7-day moving average), trend (the number of days in consecutive increase or decrease), raw data, spline, and slope.
    - The raw data, spline, and slope are provided to increase transparency in how the burden and trend are calculated.

Appendix: Methodological Tables

Table 1. Metrics Identified, Thresholds, Weight, and Geography

Metric Description	Trend Threshold	Burden Threshold	Weight	Geographic Granularity
Number of new cases by report date	14 consecutive days increase or decrease	5/10 cases per 100,000 residents (7-day MA)	6	State, Region, Locality
Test percent positivity by lab report date, PCR only	14 consecutive days increase or decrease	10% + (7-day MA)	1	State, Region, Locality
Rate of new confirmed outbreak(s) reported	14 consecutive days increase or decrease	0.04/0.06 outbreaks per 100,000 residents (7-day MA)	1	State, Region, Locality
Percent of new cases reported in healthcare workers	7 consecutive days increase or decrease	5.0% of cases among HCW (7-day MA)	0	State, Region, Locality
COVID-like illness (CLI) emergency department visits	14 consecutive days increase or decrease	4.0/6.0 CLI visits per 100,000 population (7-day MA)	1	State, Region
Number of current COVID-19 ICU hospitalizations	14 consecutive days increase or decrease	3.5 COVD-19 ICU hospitalizations per 100,000 (7-day MA)	1	State, Region
Percent of hospital beds occupied	14 consecutive days increase or decrease	90% hospital beds occupied	1	State, Region
Number of hospitals reporting difficulty acquiring PPE in next 72 hours	N/A	1 or more hospitals reporting difficulty per region within 7-day period	1	State, Region

Table 2. Individual Metric Indicator Values

Trend Criteria	Burden Criteria	Indicator Value
Threshold met in decreasing direction	No thresholds met	0
Neither threshold met	Moderate burden threshold met*	1
Threshold met in increasing direction	High burden threshold met	2

*Some metrics do not have moderate burden thresholds.

Table 3. Weight Values

Criteria	Weighted Value
Major	2
Minor	1
None	0

Table 4. Overall Region and State Burden Indicators

Sum of Weighted Indicators	Overall Burden	Overall Trend
0	Minimal Burden	
0-9	Low Burden	Decreasing
10-18	Moderate Burden	Steady
19-28	High Burden	Increasing

Table 4. Overall Region and State Burden and Trend Indicators

Sum of Weighted Indicators	Overall Trend
0 - <7	Decreasing
≥7 - <15	Fluctuating
≥15 - 22	Increasing